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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,998	12/26/2001	Masayoshi Abe	HYAE: 130	7784

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EXAMINER	
BATTAGLIA, MICHAEL V	
ART UNIT	**PAPER NUMBER**
2652	

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,998	ABE ET AL.	
	Examiner	Art Unit	
	Michael V Battaglia	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,8 and 9* is/are rejected.

7)☒ Claim(s) *3,5-7 and 10-14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/22/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. After further consideration, the election of species requirement has been withdrawn and all of the species examined.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

3. Claim 1 recites the limitation "the A/D control means" in line 22. Claim 1 is objected to because there is insufficient antecedent basis for this limitation in the claim. The limitation will be interpreted as --the A/D conversion means– in the prior art rejections below. Appropriate correction is required.

4. In regard to claims 4 and 5, ", instead of the output signal from the signal switching means" in lines 9-10 makes claims 4 and 5 seem as if they are removing a limitation from claim 2, which is a 35 U.S.C. 112 2nd paragraph issue, while not further limiting the claims 4 and 5 and removal is suggested.

5. In regard to claim 11, ", instead of the output signal from the sample hold means" in lines 8-9 makes claim 11 seem as if it is removing a limitation from claim 4, which is a 35 U.S.C. 112 2nd paragraph issue, while not further limiting claim 4 and removal is suggested.

Claim Rejections - 35 USC § 103

6. Claims 1-2, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shio (JP 06-236556) in view of Imamura et al (hereafter Imamura) (US 4,287,802). All Shio citations reference the translation provided by the Japanese Patent Office website.

In regard to claim 1, Shio discloses an optical disk control device comprising: a playback signal detection means (Fig. 1, elements 3-8) for detecting data recorded on a disk by irradiating the disk with a converged light beam; a signal switching means (Fig. 1, element 9) for successively selecting plural data signals obtained by the playback signal detection means, and performing time-division-multiplexing on the selected signals; an A/D conversion means (Fig. 1, element 11) for converting an analog signal which has been time-division-multiplexed by the signal switching means, into a digital signal; an A/D conversion command means (Fig. 1, element 10) for generating an A/D conversion command (Fig. 1, element CNT1) of the A/D conversion means and controlling the signal selection operation of the signal switching means; and an arithmetic means (Fig. 1, element 30) for generating an optical disk drive controlling signal by performing arithmetic processing on the digital signal outputted from the A/D conversion means. Shio discloses neither a serial transfer means for serial-transferring the command signal generated by the A/D conversion command means nor a serial reception means for receiving the signal from the serial transfer means and controlling the signal selection operation of the signal switching means on the basis of the received signal.

Imamura discloses a serial transfer means (Fig. 1, element 27) for serial-transferring information from one chip to another and a serial reception means (Fig. 1, element 28) for

receiving the signal from the serial transfer means. Imamura discloses that through the use of the serial transfer means and serial reception means, the number of pins is reduced.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add, between the A/D conversion command means and signal switching means of Shio, the serial transfer means and serial reception means of Imamura, the motivation being to reduce the number of pins required for the A/D conversion command means to communicate with the signal switching means. It is noted that when the serial transfer means and serial reception means of Imamura are added between the A/D conversion command means and signal switching means in the optical disk control device of Shio, the signal switching of the signal switching means will be controlled by the serial reception means.

In regard to claim 2, Shio in view of Imamura disclose an optical disk control device as defined in claim 1 comprising: an analog signal processing means including the playback signal detection means of Shio (Fig. 1, elements 3-8), the signal switching means of Shio (Fig. 1, element 9), and the serial reception means of Imamura (Fig. 1, element 28); and a digital signal processing means including the A/D conversion means of Shio (Fig. 1, element 11), the A/D conversion command means of Shio (Fig. 1, element 10), and the serial transfer means of Imamura (Fig. 1, element 27).

In regard to claim 8, Shio discloses that the output signal from the playback signal detection means is transferred to the A/D conversion means, for every conversion command (Page 2, Paragraph 007, lines 1-5). It is noted that when the serial transfer means and serial reception means of Imamura are added between the A/D conversion command means and signal switching means in the optical disk control device of Shio, the

output signal from the playback signal detection means is transferred to the A/D conversion means according to the signal from the serial reception means and the serial transfer means is controlled on the basis of the conversion command from the A/D conversion command means.

In regard to claim 9, Shio discloses that the conversion command from the A/D conversion command means includes a selection signal (Fig. 1, element CNT1); and the signal switching means is operated on the basis of the selection signal, and the time division-multiplexed signal is transferred to the AD conversion means for every A/D conversion command (Page 2, Paragraph 007, lines 1-5). It is noted that when the serial transfer means and serial reception means of Imamura are added between the A/D conversion command means and signal switching means in the optical disk control device of Shio, the conversion command is obtained from the serial reception means.

7. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (hereafter Nakamura) (US 4,795,958) in view of Imamura.

In regard to claim 1, Nakamura discloses an optical disk control device comprising: a playback signal detection means (Col. 1, lines 6-13 and Col. 3, lines 49-51) for detecting data recorded on a disk by irradiating the disk with a converged light beam; a signal switching means (Fig. 1A, element 1) for successively selecting plural data signals obtained by the playback signal detection means, and performing time-division-multiplexing on the selected signals; an A/D conversion means (Fig. 1A, element 4) for converting an analog signal which has been time-division-multiplexed by the signal switching means, into a digital signal; an A/D conversion command means (Fig. 1A, element 2) for generating an A/D conversion command of the A/D conversion means and controlling the signal selection

operation of the signal switching means; and an arithmetic means (Fig. 1A, element 5) for generating an optical disk drive controlling signal by performing arithmetic processing on the digital signal outputted from the A/D conversion means. Nakamura discloses neither a serial transfer means for serial-transferring the command signal generated by the A/D conversion command means nor a serial reception means for receiving the signal from the serial transfer means and controlling the signal selection operation of the signal switching means on the basis of the received signal.

Imamura discloses a serial transfer means (Fig. 1, element 27) for serial-transferring information from one chip to another and a serial reception means (Fig. 1, element 28) for receiving the signal from the serial transfer means. Imamura discloses that through the use of the serial transfer means and serial reception means, the number of pins is reduced.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add, between the A/D conversion command means and signal switching means of Nakamura, the serial transfer means and serial reception means of Imamura, the motivation being to reduce the number of pins required for the A/D conversion command means to communicate with the signal switching means. It is noted that when the serial transfer means and serial reception means of Imamura are added between the A/D conversion command means and signal switching means in the optical disk control device of Nakamura, the signal switching of the signal switching means will be controlled by the serial reception means.

In regard to claim 2, Nakamura in view of Imamura disclose an optical disk control device as defined in claim 1 comprising: an analog signal processing means including the playback signal detection means of Nakamura (Fig. 1, elements 3-8), the signal switching

means of Nakamura (Fig. 1, element 9), and the serial reception means of Imamura (Fig. 1, element 28); and a digital signal processing means including the A/D conversion means of Nakamura (Fig. 1, element 11), the A/D conversion command means of Nakamura (Fig. 1, element 10), and the serial transfer means of Imamura (Fig. 1, element 27).

In regard to claim 4, Nakamura discloses that the analog signal processing means further includes a sample hold means (Fig. 1A, element 3) for sampling and holding the output signal from the signal switching means, on the basis of the signal transferred from the serial transfer means; and the A/D conversion means converts the analog signal which is sampled and held by the sample hold means, into a digital signal.

Citation of Relevant Prior Art

8. Finkelstein et al (US 5,327,805) discloses an A/D conversion means for converting an analog signal which has been multiplexed by a signal switching means into a digital signal (Fig. 7). Horigome et al (US 6,016,294) discloses a signal switching means that multiplexes detected data signals from a disc and converts them from analog to digital (Fig. 2).

Allowable Subject Matter

9. Claims 3, 5-7 and 10-14 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

In regard to claim 3, none of the references of record alone or in combination disclose or suggest an optical disk control device comprising: a playback signal detection means for detecting data recorded on a disk by irradiating the disk with a converged light beam; a signal switching means for successively selecting plural data signals obtained by the

playback signal detection means, and performing time-division-multiplexing on the selected signals; an A/D conversion means for converting an analog signal which has been time-division-multiplexed by the signal switching means, into a digital signal; an A/D conversion command means for generating an A/D conversion command of the A/D conversion means; a serial transfer means for serial-transferring the command signal generated by the A/D conversion command means; a serial reception means for receiving the signal from the serial transfer means, and controlling the signal selection operation of the signal switching means on the basis of the received signal; an arithmetic means for generating an optical disk drive controlling signal by performing arithmetic processing on the digital signal outputted from the A/D control means; an analog signal processing means including the playback signal detection means, the signal switching means, and the serial reception means; and a digital signal processing means including the A/D conversion means, the A/D conversion command means, and the serial transfer means; **wherein: a plurality of the analog signal processing means are provided; and the A/D conversion means successively selects, in a predetermined order, the output signals from the signal switching means in the plural analog signal processing means, and successively converting the selected signals into digital signals.**

In regard to claim 6, none of the references of record alone or in combination disclose or suggest an optical disk control device comprising: a playback signal detection means for detecting data recorded on a disk by irradiating the disk with a converged light beam; a signal switching means for successively selecting plural data signals obtained by the playback signal detection means, and performing time-division-multiplexing on the selected signals; an A/D conversion means for converting an analog signal which has been

time-division-multiplexed by the signal switching means, into a digital signal; an A/D conversion command means for generating an A/D conversion command of the A/D conversion means; a serial transfer means for serial-transferring the command signal generated by the A/D conversion command means; a serial reception means for receiving the signal from the serial transfer means, and controlling the signal selection operation of the signal switching means on the basis of the received signal; an arithmetic means for generating an optical disk drive controlling signal by performing arithmetic processing on the digital signal outputted from the A/D control means; an analog signal processing means including the playback signal detection means, the signal switching means, and the serial reception means; and a digital signal processing means including the A/D conversion means, the A/D conversion command means, and the serial transfer means; wherein: the analog signal processing means further includes a sample hold means for sampling and holding the output signal from the signal switching means, on the basis of the signal transferred from the serial transfer means; and the A/D conversion means converts the analog signal which is sampled and held by the sample hold means, into a digital signal; **wherein the analog signal processing means includes a pair of the signal switching means, and a pair of the sample hold means.**

In regard to claim 10, none of the references of record alone or in combination disclose or suggest an optical disk control device comprising: a playback signal detection means for detecting data recorded on a disk by irradiating the disk with a converged light beam; a signal switching means for successively selecting plural data signals obtained by the playback signal detection means, and performing time-division-multiplexing on the selected signals; an A/D conversion means for converting an analog signal which has been

time-division-multiplexed by the signal switching means, into a digital signal; an A/D conversion command means for generating an A/D conversion command of the A/D conversion means; a serial transfer means for serial-transferring the command signal generated by the A/D conversion command means; a serial reception means for receiving the signal from the serial transfer means, and controlling the signal selection operation of the signal switching means on the basis of the received signal; and an arithmetic means for generating an optical disk drive controlling signal by performing arithmetic processing on the digital signal outputted from the A/D control means; **wherein: the serial transfer means and the serial reception means perform state-setting communication for setting the internal state of the optical disk control device, in addition to communication for the conversion command from the A/D conversion command means; and discrimination between these communication is performed according to identifying signals or bit lengths.**

In regard to claim 11, none of the references of record alone or in combination disclose or suggest an optical disk control device comprising: a playback signal detection means for detecting data recorded on a disk by irradiating the disk with a converged light beam; a signal switching means for successively selecting plural data signals obtained by the playback signal detection means, and performing time-division-multiplexing on the selected signals; an A/D conversion means for converting an analog signal which has been time-division-multiplexed by the signal switching means, into a digital signal; an A/D conversion command means for generating an A/D conversion command of the A/D conversion means; a serial transfer means for serial-transferring the command signal generated by the A/D conversion command means; a serial reception means for receiving the signal from the serial transfer means, and controlling the signal selection operation of

the signal switching means on the basis of the received signal; an arithmetic means for generating an optical disk drive controlling signal by performing arithmetic processing on the digital signal outputted from the A/D control means; an analog signal processing means including the playback signal detection means, the signal switching means, and the serial reception means; and a digital signal processing means including the A/D conversion means, the A/D conversion command means, and the serial transfer means; wherein: the analog signal processing means further includes a sample hold means for sampling and holding the output signal from the signal switching means, on the basis of the signal transferred from the serial transfer means; and the A/D conversion means converts the analog signal which is sampled and held by the sample hold means, into a digital signal; **wherein: the analog signal processing means further includes a variable gain amplification means for amplifying the output signal from the sample hold means; the A/D conversion means converts the analog signal which is amplified by the variable gain amplification means, into a digital signal, instead of the output signal from the sample hold means; and the gain of the variable gain amplification means is set by a state-setting signal which is transferred by state-setting communication for setting the internal state of the optical disk control device.**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Battaglia whose telephone number is (703) 305-4534. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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